

EAACI Clinical Fellowship Final Report

General Information

- **Project Title:** EGPA and HES: Similarities, Differences, and Unmet Needs
- **Fellow:** Marco Zurlo (Italy)
- **Fellowship Type & Duration:** EAACI Clinical Fellowship, 3 Months (March–June 2026)
- **Host Institution:** Université Libre de Bruxelles (ULB), Faculty of Medicine, Brussels, Belgium
- **Host Departments:** Hôpital Universitaire de Bruxelles (Clinical) & Institut Jules Bordet (Research)
- **Supervisor:** Prof. Florence Roufosse

Project Summary

This 3-month fellowship provided a unique opportunity to combine clinical training, laboratory work, and translational research. This comprehensive approach significantly broadened my understanding of Hypereosinophilic Syndromes (HES) and Eosinophilic Granulomatosis with Polyangiitis (EGPA) from both bedside and bench perspectives.

During the first six weeks, my primary focus was laboratory-based, specifically evaluating CD3⁺ T cells in patients with Lymphocytic variant HES (L-HES). The final six weeks were dedicated to clinical activities alongside Prof. Florence Roufosse, participating in the direct care and consultation of patients with EGPA and various HES syndromes.

Fellowship Metrics & Time Distribution

- **Patient Volume:** Observed and followed approximately 100 patients with HES or EGPA.
- **Clinical Activities (Hôpital Universitaire de Bruxelles):** Spent an average of 8 hours per day engaged in clinical rounds, patient consultations, and medical evaluations.
- **Laboratory Activities (Institut Jules Bordet):** Dedicated 8–9 hours per day to hands-on research and experimental observation.

Research Project & Methodology

1. Objectives and Rationale

The primary goal of both the clinical and laboratory activities was to investigate EGPA and HES within a translational framework. By working directly with patient-derived T cells, the project aimed to clarify the immunological similarities, differences, and current unmet needs in these diseases. Additionally, I contributed to a retrospective clinical study.

2. Nature of the Research

The laboratory-based project utilized a variety of advanced translational techniques:

- **Cell Isolation:** Isolation of peripheral blood mononuclear cells (PBMCs) from patient samples.
- **Phenotyping & Culture:** Evaluation of T-cell phenotypes using multi-panel Flow Cytometry, alongside cell culture assays to evaluate the effects of various targeted drugs on T-cell behavior.
- **Advanced Sequencing:** Introduction to and observation of single-cell sequencing workflows.
- **Retrospective Study:** Data collection and clinical evaluation of at least 70 patients diagnosed with eosinophil-related diseases.

3. Current Outlines and Preliminary Results

Because several experimental lines and data compilation for the retrospective study are still ongoing, definitive conclusions and final results cannot be formally reported at this time.

Future Research & Perspectives

The experimental data generated from patient T-cell analyses, combined with the comprehensive clinical characterization of this cohort, establish a strong foundation for future research. These findings will be instrumental in further elucidating the underlying pathogenic mechanisms of hypereosinophilia.

Ultimately, this fellowship has profoundly strengthened my motivation to pursue an academic career that bridges the gap between clinical care and translational research in allergic and immunologic diseases.

Acknowledgments

I would like to express my sincere gratitude to the PhD students at the Institut Jules Bordet, with a special thanks to Dr. Sina Karimi—one of the most inspiring, hardworking, and brilliant scientists I have ever had the honor to work with.

I am profoundly grateful to my supervisor, Prof. Florence Roufousse, for her immense kindness, patience, and humility. It was inspiring to witness her unmatched passion for her work, her deep empathy as a physician, and her vast knowledge of eosinophilic diseases. Both Prof. Roufousse and Dr. Karimi made me feel at home from day one; I am deeply thankful for their mentorship and for making every single day enjoyable.

Finally, I would like to thank the European Academy of Allergy and Clinical Immunology (EAACI) for granting me this opportunity through the Clinical Fellowship programme. Working alongside Prof. Roufousse has always been a professional dream of mine, and EAACI truly made this dream a reality